We Claim:

1. A laser diode, comprising:

a vertical resonator including a plurality of reflector layers, at least one active layer disposed between said plurality of reflector layers, and at least one antioxidation layer disposed between said plurality of reflector layers;

said antioxidation layer including a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths.

2. The laser diode according to claim 1, wherein said antioxidation layer consists only of said III-V semiconductor material.

3. The laser diode according to claim 1, wherein said antioxidation layer consists of said III-V semiconductor material with a molar aluminum fraction of less than 0.7.

4. The laser diode according to claim 1, wherein said antioxidation layer consists of $Al_xGa_{1-x}As$ or a chemically selective etch stop layer.

5. The laser diode according to claim 1, wherein said antioxidation layer consists of $In_yAl_xGa_{1-x-y}As_{1-z}P_z$.

6. The laser diode according to claim 1, wherein said antioxidation layer is disposed above said active layer.

7. The laser diode according to claim 1, wherein said antioxidation layer is disposed below said active layer.

8. The laser diode according to claim 1, wherein said antioxidation layer and said active layer are configured in a layer structure without an additional layer interposed between said antioxidation layer and said active layer.

9. The laser diode according to claim 1, wherein said antioxidation layer is constructed as an etch stop layer and/or an etch runout layer.

10. The laser diode according to claim 1, wherein said antioxidation layer is at least partly modulation-doped.

11. The laser diode according to claim 1, wherein at least one of said plurality of reflector layers includes a molar aluminum fraction of less than 0.9.

12. The laser diode according to claim 1, wherein at least one of said plurality of reflector layers, which is adjacent said

active layer, includes a molar aluminum fraction of less than 0.9.

13. The laser diode according to claim 1, further comprising:

at least one current aperture layer;

said antioxidation layer constructed as an etch stop layer and/or an etch runout layer;

said antioxidation layer disposed between said plurality of reflector layers and above said current aperture layer.

14. The laser diode according to claim 1, further comprising:

at least one current aperture layer; and

a coverlayer for protecting layers being uncovered after an etching process against oxidation during processing steps subsequent to said etching process;

said antioxidation layer 1 disposed above said current aperture layer 10.

15. The laser diode according to claim 14, wherein said coverlayer is a CVD-SiN_x coverlayer.

16. A method for fabricating a laser diode, which comprises:

providing the laser diode with a vertical resonator having at least one active layer disposed between reflector layers; and

providing at least one antioxidation layer consisting of a III-V semiconductor material with an optical thickness of at least two quarter-wavelengths and configuring the antioxidation layer between the reflector layers.

17. The method according to claim 16, wherein the III-V semiconductor material of the antioxidation layer has a molar aluminum fraction of less than 0.7.

18. The method according to claim 16, wherein the antioxidation layer consists of $Al_xGa_{1-x}As$.

19. The method according to claim 16, wherein the antioxidation layer consists of a chemically selective etch stop layer.

20. The method according to claim 19, wherein the antioxidation layer consists of $In_y-Al_xGa_{1-x-y}As_{1-z}P_z$.